



# A Case Study of Pre-treatment HIV Drug Resistance among Antiretroviral Therapy Initiators in the Hhohho Region, Eswatini, 2015

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## Abstract

The expansion of antiretroviral therapy (ART) coverage in sub-Saharan Africa, while successful, increases the potential for HIV drug resistance (HIVDR). Pre-treatment drug resistance (PDR) among individuals starting ART threatens the efficacy of standard first-line regimens. Eswatini has a high HIV prevalence, but regional-level data on PDR are scarce, highlighting a need for local surveillance to guide treatment policy. This case study determined the prevalence and patterns of pre-treatment HIV drug resistance among newly diagnosed individuals initiating ART in the Hhohho Region of Eswatini. A cross-sectional study utilised remnant blood samples from ART initiators at selected health facilities. Viral load testing was conducted, followed by genotypic resistance testing on samples with sufficient viral load. Sequences were analysed for surveillance drug resistance mutations as defined by the World Health Organisation. The overall prevalence of PDR to any antiretroviral drug class was 12.4%. Resistance to non-nucleoside reverse transcriptase inhibitors (NNRTIs) was most common, present in 10.1% of participants. Lower levels of resistance were found to nucleoside reverse transcriptase inhibitors and protease inhibitors. A moderate level of PDR, predominantly NNRTI resistance, was identified among ART initiators in the Hhohho Region. This indicates that the standard first-line NNRTI-based regimen may be compromised for a substantial patient proportion. Programmes should consider expediting the transition to WHO-recommended dolutegravir-based first-line regimens. Strengthening routine PDR surveillance and enhancing adherence counselling are crucial. Further research should investigate the specific drivers of resistance in this context. HIV drug resistance, pre-treatment drug resistance, antiretroviral therapy, Eswatini, public health surveillance, case study. This study provides essential regional-level evidence on pre-treatment HIV drug resistance in Eswatini, offering data to inform national treatment guidelines and strengthen the HIV programme's long-term sustainability.

**Keywords:** *HIV drug resistance, pre-treatment drug resistance, antiretroviral therapy, sub-Saharan Africa, public health surveillance*

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